Contextual online help design: Questioning research practice

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Many research studies on the realisation of contextual online help systems have been carried out during the last decade; see, for example, the Eurohelp Project presented in [1]. These researches address the need for efficient user support for both professional and non professional users [2], and attempt to remedy the obvious inappropriateness of the majority of online help facilities implemented in current software applications.

Most studies focus on the implementation of context sensitive help and aim at solving the correlated technical issues, namely, the engineering of the following key modules: domain knowledge representation [3], system awareness to, and use of, available contextual information, and system modelling of users' needs[4]. However, there has been no attempt, at least to our knowledge, to implement the following general design recommendation which sounds like a truism: a successful way to achieve online help that raises users' satisfaction is to provide users with information adapted to the actual context of use and to the current state of the user task in progress. This principle is supported by various empirical or experimental results; see, for instance, [6] and [10].

Assuming that context sensitivity, especially sensitivity to the current interaction, is necessary to provide users with useful, effective help information, further studies need to be performed with a view to determining how to exploit this context sensitivity in order to efficiently meet users' actual needs.

Ambiguities remain in the literature on design requirements and recommendations concerning online help systems:

- What aims should prove appropriate for guiding the design of online help systems? From active contextual help to advising facilities [5], online help systems tend nowadays to operate as tutors. However, users' objectives when requesting help do not usually include the mastery of the software operation. It has been observed that users, especially the general public, are mainly focussed on completing the ongoing task; learning how to use the software efficiently is a secondary objective for them, so that didactic help messages are ineffective [6].
- What are the specific needs of users when consulting a help system? How to generate and deliver context sensitive help information still remain open issues, since most novice users have difficulties in using standard information retrieval techniques, and active solicitations from the help system are likely to be ignored.

Moreover, it is still unclear what kind of contextual information will actually prove useful for implementing efficient help, and how such information could be exploited. The notion of context itself encompasses many different notions, ranging from the interaction environment to the user's actions on the system interface, thus introducing numerous ambiguities in the litterature.

As can be seen, many issues relating to the design of effective online help are still pending. We consider that most of them cannot be solved using standard top-down approaches which are still currently used in this research area; such approaches include two main steps: implementing concepts (that have been hypothesized intuitively or from a priori knowledge) into a prototype which is then evaluated in terms of its utility and usability. One of the major weaknesses of this

approach lies in the holistic character of the evaluation which makes it impossible to distinguish between flaws stemming from the concepts themselves and weaknesses in their implementation. In addition, in the case of sophisticated systems, weaknesses in the global architecture of the system or in one of its complex functionalities will be difficult and costly to remedy. To our mind, the most widespread misconception regarding the design of contextual help systems is to consider them as specific tutorial systems, since the latter systems aim at helping novice users to learn the related software usage, rather than helping them to achieve their actual objectives. Such systems use contextual data as opportunities to deliver didactical information to users.

In order to avoid the drawbacks of the implementation-evaluation cycle, we propose a bottom-up approach, inspired from several experimental studies [7,8], for addressing the issues mentioned earlier, namely: what kind of contextual information could prove useful for achieving effective online help, and how could it be exploited.

This approach includes the three following steps [10]:

1. Knowledge acquisition through the empirical study of a real help situation, that is, in our case, the analysis of help dialogues between a novice user and a human expert [9] with a view to eliciting the actual contextual information used by the human expert.
2. Partial implementation of a help system integrating the knowledge acquired during the first step (use of the wizard of Oz technique for the simulation of some functionalities, such as the understanding of users' natural language help requests).
3. Evaluation of the utility and usability of the partly simulated help system involving potential users (in particular, analysis of the subjects' performances according to their individual cognitive characteristics); then, interpretation of quantitative and qualitative results of this ergonomic assessment in terms of general design recommendations.

We advance that this bottom-up approach, based on an initial empirical or field study, and involving the wizard of Oz technique as a rapid prototyping technique, is applicable to the design of any complex ("intelligent") cooperative interactive system or software assistant.

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